Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Claims 1, 6, 14, 20, 25, 31, and 33 have been amended.

1. (Currently Amended) A method for communicating data between functional blocks in a computing device, comprising:

establishing ~~at least one~~a thread identifier for each independent data stream between an initiator functional block and a target functional block, wherein a plurality of independent data streams exist between the initiator functional block and the target functional block, ~~each thread identifier associating a data transfer with a transaction stream the data transfer between an initiator functional block and a target functional block are part of~~;

if the target functional block is unable to accept a data transfer from the initiator functional block, the target functional block issuing a busy signal identified by the thread identifier; ~~and~~

the initiator functional block withholding issuance of data transfers associated with the thread identifier in response to the issued busy signal, wherein data transfers not associated with the thread identifier identified by the issued busy signal may be issued; and

mapping a data flow from the initiator functional block to the target functional block to a thread indicated by the thread identifier to meet a service guarantee on a per thread identifier basis.

2. (Original) The method as set forth in claim 1, wherein the busy signal comprises a signal that is maintained active when the target functional block is unable to accept data transfers.

3. (Original) The method as set forth in claim 1, wherein the busy signal comprises a credit signal used to communicate a number of credits that indicate how many data transfers the target functional block can accept.

4. (Original) The method as set forth in claim 3, further comprising decrementing the number of credits for each active data transfer and incrementing the number of credits upon freeing up of resources for further data transfers.

5. (Original) The method as set forth in claim 3, wherein the credit signal is generated by maintaining the signal in an active state for a number of clock cycles corresponding to the number of credits.

6. (Currently Amended) The method as set forth in claim 3, wherein the credit signal comprises a multi-bit coded signal indicative of the number of credits.

7. (Original) The method as set forth in claim 1, further comprising determining service guarantees for at least one transaction stream between initiator functional blocks and the target functional blocks.

8. (Original) The method as set forth in claim 1, further comprising the initiator functional block stopping to send data transfers so that the target functional block receives no more than a determined number of data transfers after issuance of the busy signal.

9. (Original) The method as set forth in claim 1, wherein the target functional block issues a busy signal no more than a determined number of clock cycles after the target functional block determines that it has insufficient buffer space to receive data transfers from an initiator functional block.

10. (Original) The method as set forth in claim 8, further comprising the target device buffering the data transfers received after issuance of the busy signal until resources become available to service the buffered data transfers.

11. (Original) The method as set forth in claim 7, wherein determining service guarantees comprises:

mapping the transaction stream to data channels of components between an initiator device and target device;

converting performance guarantees of selected data channels of the mapped transaction stream such that the guarantees of the data channels are aligned to be uniform in units; and

aggregating the guarantees of the data channels for the transaction stream.

12. (Original) The method as set forth in claim 11, wherein aggregating comprises a function selected from the group consisting of summing the guarantees of the data channels of the transaction stream, selecting the maximum guarantees of the data channels of the transaction stream, and selecting the minimum guarantees of the data channels of the transaction stream.

13. (Original) The method as set forth in claim 11, wherein the guarantees are selected from the group consisting of quality of service guarantees, performance guarantees, bandwidth guarantees, latency guarantees, maximum outstanding request guarantees and maximum variance in service latency guarantees.

14. (Currently Amended) A method for communicating data between functional blocks in a computing device, comprising:

establishing at least one thread identifier, each thread identifier associating a data transfer with a transaction stream that the data transfer between an initiator functional block and a target functional block are part of;

if the target functional block is unable to accept a data transfer from the initiator functional block, the target functional block issuing a busy signal identified by the thread identifier; ~~and~~

storing in a buffer data transfers received by the target functional block after issuance of the busy signal until resources become available to service the buffered data transfers, the amount of buffer sufficient to buffer any transfers that arrive after the

busy signal is asserted, wherein an interface between the initiator functional block and target functional block does not block data transfers of other threads; and

mapping a data flow from the initiator functional block to the target functional block to a thread indicated by the thread identifier to meet a service guarantee on a per thread identifier basis.

15. (Original) The method as set forth in claim 14, wherein the target functional block issues a busy signal a determined number of clock cycles after the target functional block determines that it is unable to accept a data transfer from an initiator functional block.

16. (Original) The method as set forth in claim 14, further comprising the target functional block receiving no more than a determined number of data transfers after issuance of the busy signal.

17. (Original) The method as set forth in claim 14, further comprising determining service guarantees for at least one transaction stream between initiator functional blocks and the target functional blocks.

18. (Original) The method as set forth in claim 17, wherein determining service guarantees comprises:

mapping the transaction stream to data channels of components between an initiator device and target device;

converting performance guarantees of selected data channels of the mapped transaction stream such that the guarantees of the data channels are aligned to be uniform in units; and

aggregating the guarantees of the data channels for the transaction stream.

19. (Original) The method as set forth in claim 18, wherein aggregating comprises a function selected from the group consisting of summing the guarantees of the data channels of the transaction stream, selecting the maximum guarantees of the data channels of the transaction stream, and selecting the minimum guarantees of the data channels of the transaction stream.

20. (Currently Amended) A communication apparatus, comprising:

at least two functional blocks, wherein an initiator functional block communicates with a target functional block by establishing a connection;

a bus coupled to each of the functional blocks and configured to carry a plurality of signals, wherein the plurality of signals comprises a thread identifier configured to associate a data transfer with a transaction stream between the initiator functional block and target functional block, and a ~~busy~~ credit signal identified by the thread identifier, the ~~busy~~ credit signal issued by the target functional block to indicate ~~resources are unavailable to perform a data transfer~~ how many data transfers the target functional block can accept, wherein the initiator functional block associated withholds issuance of data transfers associated with the thread identifier if the credit signal indicates that the target functional block can accept no data transfers ~~in response to the issuance of the~~

~~busy signal~~, and the bus being non-blocking, via the use of credit signals, to enable a determination of service guarantees for transaction streams between initiator functional blocks and target functional blocks.

21. (Original) The apparatus as set forth in claim 20, wherein the busy signal comprises a signal that is maintained active when the target functional block is unable to accept data transfers.

22. (Original) The apparatus as set forth in claim 20, wherein the busy signal comprises a credit signal comprising a number of credits that indicate how many data transfers the target functional block can accept.

23. (Original) The apparatus as set forth in claim 22, wherein the number of credits is decremented for each active data transfer and incremented upon freeing up of resources for further data transfers.

24. (Original) The apparatus as set forth in claim 22, wherein the credit signal is generated by maintaining the signal in an active state for a number of clock cycles corresponding to the number of credits.

25. (Currently Amended) The apparatus as set forth in claim 22, wherein the credit signal comprises a multi-bit coded signal indicative of the number of credits.

26. (Original) The apparatus as set forth in claim 20, wherein the at least one transaction stream is non-blocking enabling determination of service guarantees for transaction streams between initiator functional blocks and target functional blocks.

27. (Original) The apparatus as set forth in claim 20, wherein the target functional block further comprises a buffer to receive data transfers issued by the initiator functional block after issuance of the busy signal by the target functional block and before receipt of the busy signal by the initiator functional block.

28. (Original) The apparatus as set forth in claim 27, wherein service guarantees are determined by mapping the transaction stream to data channels of components between an initiator device and target device, converting performance guarantees of selected data channels of the mapped transaction stream such that the guarantees of the data channels are aligned to be uniform in units, and aggregating the guarantees of the data channels for the transaction stream.

29. (Original) The apparatus as set forth in claim 28, wherein aggregating comprises a function selected from the group consisting of summing the guarantees of the data channels of the transaction stream, selecting the maximum guarantees of the data channels of the transaction stream, and selecting the minimum guarantees of the data channels of the transaction stream.

30. (Original) The apparatus as set forth in claim 26, wherein the guarantees are selected from the group consisting of quality of service guarantees, performance guarantees, bandwidth guarantees, latency guarantees, maximum outstanding request guarantees and maximum variance in service latency guarantees.

31. (Currently Amended) A communication apparatus, comprising:

at least two functional blocks, wherein an initiator functional block communicates with a target functional block by establishing a connection;

a bus coupled to each of the functional blocks and configured to carry a plurality of signals, wherein the plurality of signals comprises at least one thread identifier configured to associate a data transfer with a transaction stream that the data transfer between an initiator functional block and a target functional block are part of; wherein if the target functional block is unable to accept a data transfer from the initiator functional block, the target functional block issuing a busy signal identified by the thread identifier and buffering data transfers received after issuance of the busy signal until resources become available to service the buffered data transfers; ~~and~~

a buffer coupled to the target functional block, the size of the buffer sufficient to buffer any number of data transfers that arrive on the transaction stream after the busy signal is asserted~~, wherein an interface between the initiator functional block and target functional block does not block the interface and data transfers of at least one of other transactions streams can be performed~~; and

wherein the bus implements a mapping algorithm to map data flow of the transaction stream and aggregate service guarantees from components between the initiator functional block and the target functional block

32. (Original) The apparatus as set forth in claim 31, wherein the target functional block issues a busy signal a determined number of clock cycles after the target functional block determines that it is unable to accept a data transfer from an initiator functional block.

33. (Original) The apparatus as set forth in claim 31, further comprising the target functional block receiving no more than a determined number of data transfers after issuance of the busy signal.

34. (Original) The apparatus as set forth in claim 31, further comprising the target functional block determining service guarantees for at least one transaction stream between initiator functional blocks and the target functional blocks.

35. (Original) The apparatus as set forth in claim 34, wherein determining service guarantees comprises:

mapping the transaction stream to data channels of components between an initiator device and target device;

selectively converting determine guarantees of data channels of components of the mapped transaction stream such that the guarantees of the data channels are aligned to be uniform in units; and

aggregating the guarantees of the data channels for the transaction stream.

36. (Original) The apparatus as set forth in claim 35, wherein aggregating comprises a function selected from the group consisting of summing the guarantees of the data channels of the transaction stream, selecting the maximum guarantees of the data channels of the transaction stream, and selecting the minimum guarantees of the data channels of the transaction stream.